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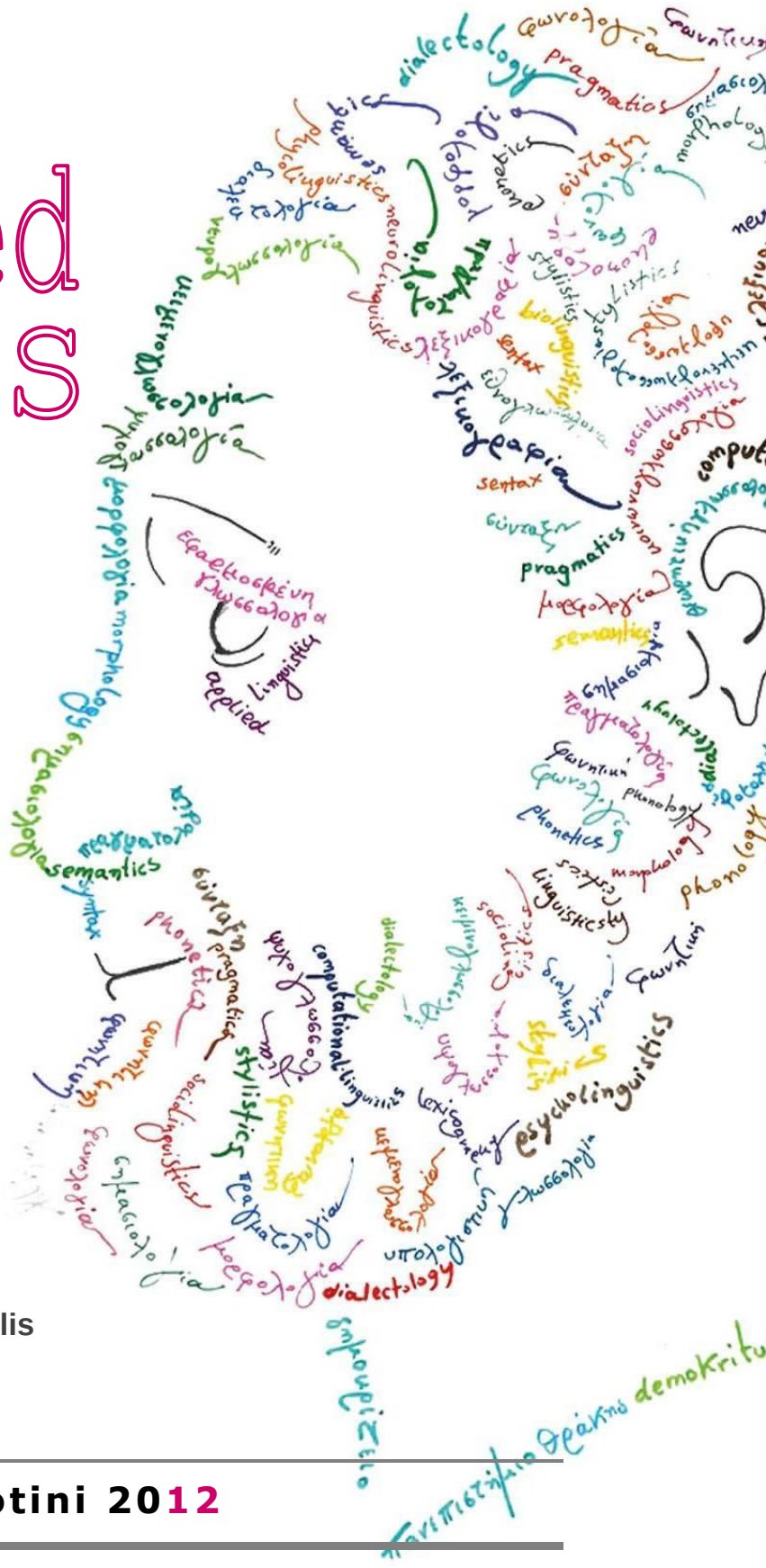

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GENDER ASSIGNMENT AND GENDER AGREEMENT IN CHILD GREEK L2[1]

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ABSTRACT

The present study investigates the performance of Turkish-speaking child L2 learners of Greek of different proficiency levels on gender assignment and gender agreement in Greek compared to monolingual controls. Results indicate that performance increases with increased proficiency level, although accuracy levels of even advanced child L2 learners on gender agreement remain relatively low. Furthermore, morpho-phonological cues seem to play a more important role in the gender assignment task, while semantic cues are significant in the gender agreement task, as they affect all participant groups' performance in the latter task.

Keywords: child L2 acquisition, gender assignment, gender agreement, morpho-phonological cues, semantic cues

1. Introduction

Gender acquisition is considered to be particularly difficult for adult L2 learners. According to the Failed Functional Features Hypothesis grammatical gender is impossible to acquire if the L1 does not have grammatical gender (Hawkins and Franceschina 2004). Another group of researchers claims that adult L2 learners can acquire gender, as their performance increases with increased proficiency level, and that they may have the abstract gender representations but experience a mapping problem between abstract features and their surface forms (White et al. 2004). Recently it has been suggested that child L2 acquisition may also differ from L1 acquisition when age of onset of acquisition is later than 4 years (Meisel 2009) or when input is below a certain threshold (Unsworth 2008). It has even been suggested that L2 children may have intact underlying representations but experience mapping problems (Chondrogianni et al. 2011).

Although the difficulty in distinguishing between gender assignment and gender agreement is acknowledged, researchers often use the gender of the determiners in order to tap on gender assignment and the gender of the adjectives in order to tap on gender agreement. There is evidence that both L2 children and adults perform better on determiners than adjectives, as in the latter case they need not only possess the correct gender specifications but also retrieve the correct adjective, which is more cognitively demanding (Montrul and Potowski 2007, Dewaele and Véronique 2001).

The role of linguistic variables on gender acquisition has also been examined, although the picture is not very clear. There are indications that in gender assignment L2 learners rely primarily on morpho-phonological rules based on noun endings (Holmes and de la Bâtie 1999) although according to another study semantic cues also play some role as L2 learners perform better when morpho-phonological and semantic cues coincide (Oliphant 1998). On the other hand, semantic cues (natural gender) have been found to facilitate processing of gender agreement for both native speakers and L2 learners, while morpho-phonological cues had facilitatory effects only for native speakers (Alarcón 2009). Furthermore, studies using error induction procedures have shown that native speakers of Italian and French make more gender agreement errors when there is a discrepancy between natural and grammatical gender (Vigliocco and Franck 2001).

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Turning to the two languages relevant to the present study, Turkish is a language without grammatical gender, whereas Greek has a tripartite gender distinction: masculine, feminine, neuter. Grammatical gender in Greek can be, to some extent, computed on the basis of semantic and morpho-phonological properties of nouns (Anastasiadi-Symeonidi and Chila-Markopoulou 2003). More specifically, it has been claimed that certain noun endings are prototypically masculine, feminine or neuter. On the other hand, [+animate] masculine nouns with masculine referents and [+animate] feminine nouns with feminine referents are semantically prototypical, whereas [-animate] masculine and feminine nouns are semantically non-prototypical, while the inverse holds for neuter nouns: [-animate] neuter nouns are semantically prototypical and [+animate] neuter nouns are semantically non-prototypical, as in this case there is a clash between natural and grammatical gender.[2]

Acquisition studies in L1 (Gavriilidou and Efthymiou 2003) and L2 Greek (Varlokosta 2005) have shown that both Greek preschool children and Turkish children acquiring Greek as an L2 perform better in gender assignment when nouns are prototypical with respect to gender, i.e. when morpho-phonological and semantic cues coincide. Furthermore, Gavriilidou and Efthymiou (2003) claim that preschool children rely primarily on morpho-phonological cues –and only secondarily on semantic cues– when assigning gender to Greek nouns[3] as well as that there is gradation of prototypicality even within the prototypical categories[4]. Additionally, studies on gender agreement in L2 Greek indicate that the neuter form of the adjective, which is considered to be the default and the most easily accessible, is usually overgeneralized, although another main type of error attested consists in the phonological matching between nominal and adjectival endings (Agathopoulou et al. 2008). Finally, it should be noted that native speakers of Greek sometimes perform semantic instead of grammatical gender agreement when there is a discrepancy between the two (Chila-Markopoulou 2003).

In this study we examine (a) gender assignment as well as gender agreement in Turkish-speaking child L2 learners of Greek and (b) the role of different linguistic variables (type of ending versus semantic prototypicality) in the two tasks. The question of whether the L2 learners' performance should be attributed to their underlying knowledge or to performance issues is also touched upon.

More specifically, the following research hypotheses have been formulated:

(a) Native speakers of Greek (NS) will have higher accuracy than child L2 learners of Greek (NNS) on both tasks (Montrul and Potowski 2007).

(b) NNS' accuracy will increase according to their proficiency level (White et al. 2004).

(c) If NNS have acquired gender representations, but experience mapping-accessibility problems, they will score higher on gender assignment than gender agreement, which is a cognitively more demanding task (Montrul and Potowski 2007).

(d) NNS will have higher accuracy on semantically prototypical nouns (Gavriilidou and Eftymiou 2003, Varlokosta 2005).

(e) There might be a differential effect of the linguistic variables in the two tasks: noun ending might play a more important role in gender assignment (Holmes and de la Bâtie 1999) and semantic prototypicality in gender agreement (Alarcón 2009).

2. Method

2.1 Materials

Two off-line tasks were employed, one to assess gender assignment and one to assess gender agreement. Figure 1 presents an example from the gender assignment task on the left and an example from the gender agreement task on the right. In the gender assignment task, the participants were given pictures accompanied by the nouns depicted on the pictures and were asked to choose the correct definite article for each noun. In the gender agreement task, the participants were presented with two pictures showing the same referent. The two pictures of the referents differed with respect to a specific property, for example size (e.g. a big umbrella and a small umbrella). One of the pictures was circled and the participants had to use an adjective to refer to the circled referent. Both tasks included the same nouns. In particular, 64 nouns with 8 different endings (8X8=64), 3 typically masculine (*-os, -as, -is*), 2 typically feminine (*-a, -i*) and 3 typically neuter (*-o, -i, -ma*), were used in both tasks. Half the nouns in

[2] The notion of semantic prototypicality extends beyond that of natural gender, but we leave this aside, since it goes beyond the purpose of the present paper.

[3] This claim is partly based on the fact that L1 children often assign feminine gender to neuter nouns ending in *–i*.

[4] They claim inter alia that masculine nouns ending in *–os* are more prototypical than those ending in *–as, -is*.

each ending, except ending *–ma*[5], (4x7=28) were semantically prototypical, i.e. [+human] masculine and feminine nouns and [-animate] neuter nouns, and half were semantically non-prototypical, i.e. [-animate] masculine and feminine nouns and [+human] neuter nouns. All nouns were prototypical in terms of the morphological endings. There are however two endings that could pose additional problems for L2 learners: a) ending *–i* can mark either feminine or neuter nouns, although the ambiguity is resolved by different graphemes (<η> and <ι> respectively) and b) ending *–ma* (neuter) could get confused with ending *–a* (feminine).

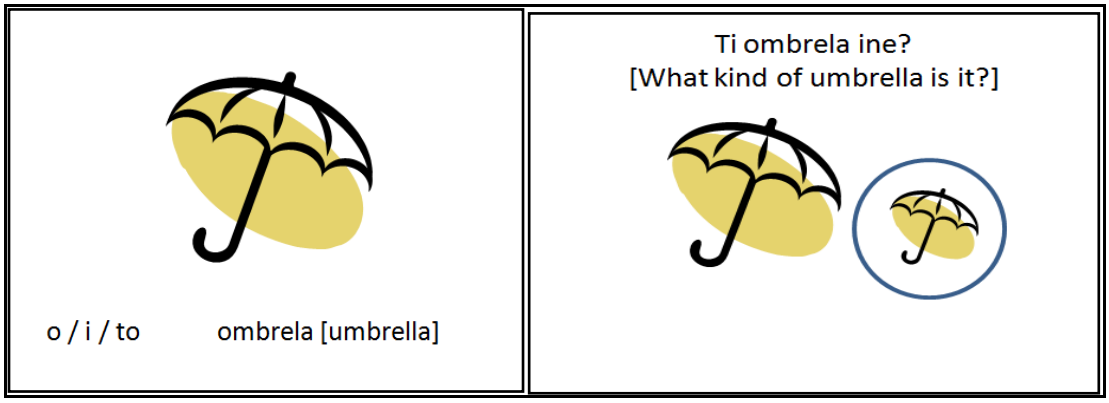

Figure 1 Examples from the gender assignment and the gender agreement task

2.2 Participants

41 native speakers of Greek (NS) and 125 Turkish-speaking learners of Greek (NNS) participated in both tasks. They were all first and second year students (aged 12-14) in four high-schools of rural areas in Western Thrace. Proficiency in Greek was measured by means of a written proficiency test, which was part of the test *Let's Speak Greek III* (Tzevelekou et al. 2003) that has been designed in order to examine Turkish-speaking children's proficiency in L2 Greek. The test was administered to both NS and NNS. NS had a mean of 21 out of a maximum of 24 (SD=2, range=17-24). NNS were divided into four proficiency levels[6] based on the mean and the SD of the NS group: a) advanced, range 17-24, mean=19, SD=2, n=24, b) high intermediate, range 13-16, mean=15, SD=1, n=28, c) low intermediate, range 9-12, mean=11, SD=1, n=40, d) beginners, range 1-8, mean=6, SD=2, n=33. None of the L2 adolescents had parents who were native speakers of Greek. Their age of onset of acquisition wasn't examined, but Turkish-speaking children growing up in these areas of Greece are usually first exposed to Greek when they enter Primary school.

2.3 Procedure

Participants were examined orally on an individual basis by the author. The slides with the pictures and the nouns were presented on a computer screen in the form of a power-point presentation. The researcher read the questions, which were also written on the slides. The participants' answers were written down by the researcher on an answer sheet. There were three practice trials for the gender assignment task and eleven practice trials for the gender agreement task, in which the participants encountered all the adjectives used in the task. Both tasks were untimed.

[5] All nouns ending in *–ma* were [-animate], thus semantically prototypical.

[6] As only part of the original test was administered, NNS could not be classified according to the range of proficiency levels specified for that test. Consequently, we relied on the NS mean score and SD in order to assign them to different proficiency levels, as NNS who score within two SDs of the NS mean are generally considered to be advanced.

2.4 Data Analysis

In the gender assignment task correct responses were scored when the participants selected the correct definite article. In the gender agreement task correct responses were scored when the participants produced an adjective that agreed in gender with the corresponding noun, irrespective of whether it was suitable in terms of meaning and of whether there were any other errors in the form of the adjective. One item[7] was excluded from the analysis due to inconsistent responses of the NS in both tasks.

Participants received 1 point for each correct response. Each participant's accuracy score, i.e. the sum of correct responses (maximum=63), was calculated for each task. Additionally, the percentage of correct responses of each participant for each ending as well as for prototypical and non-prototypical nouns were also calculated.

In order to test hypotheses (a) and (b), one-way ANOVAs with accuracy score as the dependent variable and group of participants as the independent variable were conducted for each task. When there was a main effect of group, post-hoc Games-Howell comparisons followed up in order to spot the significant differences that existed between groups. All differnces reported were significant at $p<.05$ or higher. Hypothesis (c) was tested by means of separate paired-samples t-tests that were conducted for each group of participants and examined whether accuracy scores were higher for the gender assignment than for the gender agreement task. Separate paired-samples t-tests were also used to examine whether the percentage of correct resposes of each group of participants was higher for semantically prototypical versus semantically non-prototypical nouns in each task[8], cf. hypothesis (d). Finally, in order to test for the effect of type of ending on performance on gender assignment and gender agreement, cf. hypothesis (e), separate one-way ANOVAs for each task and each group of participants were conducted with type of ending (*-os* vs *–as* vs *–is* vs *-a* vs *–i*(fem) vs *–o* vs *–i*(neut) vs *-ma*) as the independent variable and percentage of correct responses as the dependent variable. Whenever there was a significant main effect of type of ending, post-hoc Bonferroni comparisons were conducted in order to test for significant differences in accuracy levels between individual endings. Significance level was once again set at $p<.05$.

3. Results

Figure 2 presents accuracy (%) of all groups of participants in both tasks. Native speakers are at ceiling on the gender assignment task, whereas they perform 1% of errors on the gender agreement task. The accuracy levels of NNS of all proficiency levels seem relatively low. Advanced NNS, however, seem to have acquired gender specifications as they perform above 90% on the gender assignment task, but lag behind on the agreement task. Furthermore, all groups of participants have higher accuracy on gender assignment than on gender agreement and there seems to be improvement with increased proficiency for both tasks.

These results were stastically significant. More specifically, there was a main effect of group for both the gender assignment task ($F(4,161)=74.47$, $p=.000$) and the gender agreement task ($F(4,161)=196.83$, $p=.000$). Post-hoc comparisons revealed that in both tasks (a) NS had higher accuracy than all groups of NNS, (b) advanced NNS had higher accuracy than all other groups of NNS, (c) high intermediate and low intermediate NNS had higher accuracy than beginners, but (d) did not significantly differ from each other. It is however important to note that in the gender agreement task the difference between high intermediate and low intermediate NNS was approaching significance ($p=.055$). Finally, all groups of participants performed better on gender assignment than gender agreement ($t(32)=5.89$, $p=.000$, for beginners, $t(39)=11.34$, $p=.000$ for low intermediate, $t(27)=8.14$, $p=.000$ for high intermediate, $t(23)=7.29$ $p=.000$ for advanced NNS, $t(40)=4.02$, $p=.000$ for NS).

[7] The excluded noun is the masculine noun *τοίχος* "wall", which apparently got confused with the neuter noun *τείχος*, which has a similar meaning.

[8] Neuter nouns ending in *–ma* were not included in this analysis, as there were not any semantically non-prototypical nouns in that ending.

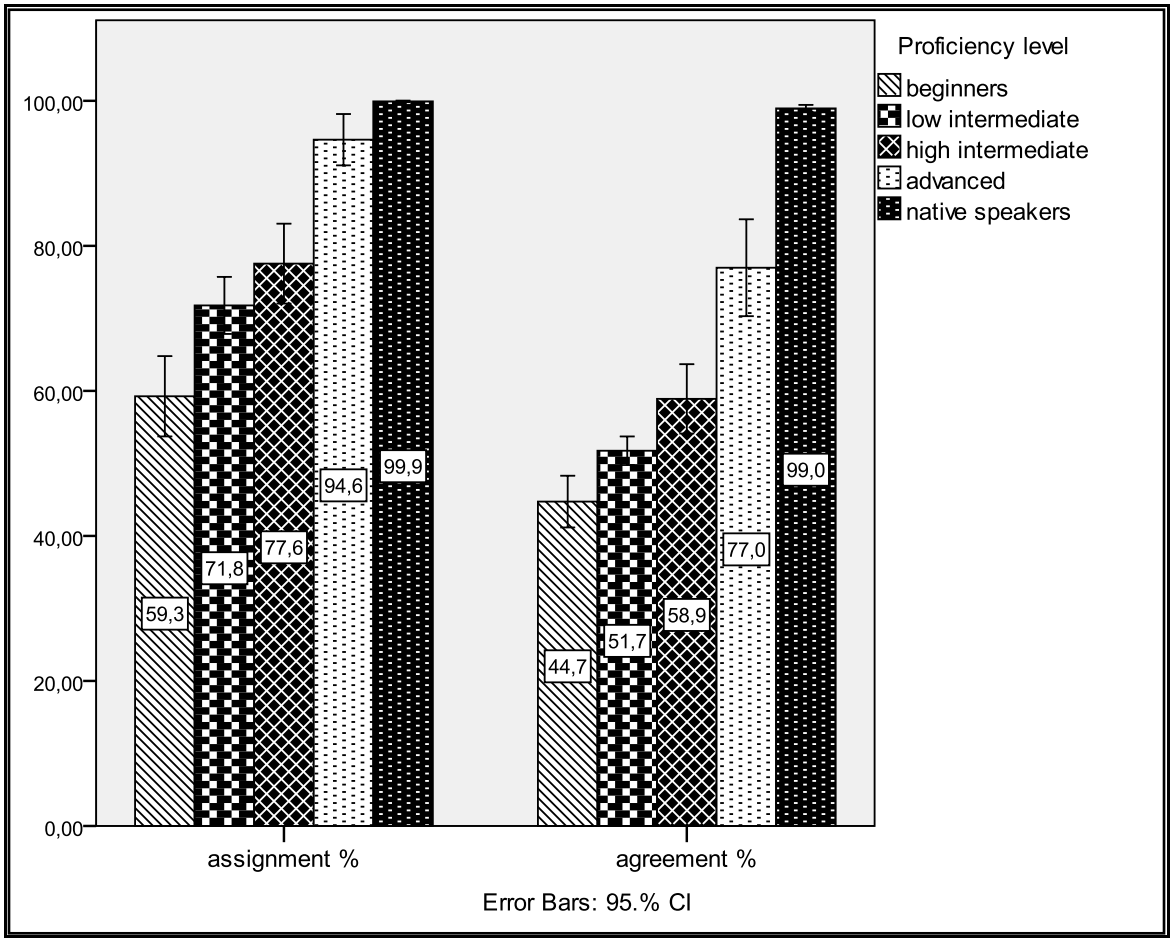

Figure 2 Accuracy (%) on gender assignment and gender agreement

Table 1 presents accuracy of each group of participants on each ending and according to the semantic prototypicality of nouns for the gender assignment task. All groups of NNS seem to perform better on semantically prototypical than on semantically non-prototypical nouns. Additionally, they all seem to obtain their lowest score on words ending in *–ma* and they also seem to perform worse on feminine nouns in *–i* than on feminine nouns in *–a* and worse on neuter nouns in *–i* than on neuter nouns in *–o*.

Statistical analyses revealed that beginners, low intermediate and high intermediate NNS had higher accuracy, i.e. higher percentage of correct responses, on semantically prototypical than on semantically non-prototypical nouns ($t(32)=7.18$, $p=.000$, $t(39)=8.33$, $p=.000$ and $t(27)=6.52$, $p=.000$ respectively). The difference was not significant for NS ($t(40)=0$, $p=1$) and it was only approaching significance for advanced NNS ($t(23)=1.93$, $p=.066$) probably due to ceiling effects. Additionally, there was a main effect of ending for all groups of NNS ($F(4.39,140.52)=6.96$, $p=.000$ for beginners, $F(3.68,143.50)=17.88$, $p=.000$ for low intermediate, $F(4.05,109.40)=4.67$, $p=.002$ for high intermediate, $F(1.67,38.45)=4.73$, $p=.02$ for advanced NNS) but not for NS ($F(7,280)=.85$, $p=.54$).

According to post-hoc analyses, beginners' accuracy was higher on:

(a) masculine nouns in *–os* than on masculine nouns in *–as* and *–is*,
(b) feminine nouns in *–a* than on masculine nouns in *–is* and neuter nouns in *–i* and *–ma*,
(c) feminine nouns in *–i* than on masculine nouns in *–is*.

Low intermediate NNS had higher accuracy on:

(a) masculine nouns in *–os* than on masculine nouns in *–as* and *–is*, feminine nouns in *–i* and neuter nouns in *–o*, *-i*, *-ma*,

(b) feminine nouns in *–a* than on masculine nouns in *–is*, feminine nouns in *–i* and neuter nouns in *–i* and *–ma*,
(c) masculine nouns in *–as* than on masculine nouns in *–is* and neuter nouns in *–ma*,
(d) feminine nouns in *–i* than on neuter nouns in *–ma* and
(e) neuter nouns in *–o* than on neuter nouns in *–i* and *–ma*.

High intermediate NNS had higher accuracy on:

(a) masculine nouns in *–os* than on masculine nouns in *–is* and neuter nouns in *–i*,
(b) feminine nouns in *–a* than on neuter nouns in *–o* and *–i*.

Unexpectedly, performance on ending *–ma* was not significantly different from performance on any other ending, although accuracy on that ending was particularly low (67%). Advanced NNS had higher accuracy[9] on:

(a) masculine nouns in *–os* and feminine nouns in *–a* than on feminine nouns in *–i* and neuter nouns in *–ma*,
(b) masculine nouns in *–as* and *-is* and neuter nouns in *–o* than on neuter nouns in *–ma*.

It seems thus that all groups of NNS exhibited a similar pattern of performance: they all scored worse on ending *–ma*, although the difference was not always reflected in the statistics, and all groups, except advanced NNS, also scored worse on ending *–is*. Accuracy on neuter and feminine nouns in *–i* was also relatively low.

Gender	Ending	Semantic Prototypicality	Beginners	Low Intermediate	High Intermediate	Advanced	NS
Masc.	*-os*	Prot.	75 (30)	96 (10)	96 (15)	100 (0)	100 (0)
		Non-prot.	61 (35)	78 (29)	75 (35)	94 (19)	100 (0)
	-as	Prot.	70 28)	92 (19)	90 (21)	100 (0)	100 (0)
		Non-prot.	42 (29)	65 (40)	66 (33)	93 (25)	100 (0)
	-is	Prot.	53 (35)	73 (32)	81 (27)	99 (5)	100 (0)
		Non-prot.	36 (29)	48 (34)	63 (36)	94 (22)	100 (0)
Fem.	*-a*	Prot.	86 (23)	97 (8)	97 (8)	100 (0)	100 (0)
		Non-prot.	56 (33)	75 (28)	79 (29)	99 (5)	100 (0)
	-i	Prot.	91 (20)	94 (14)	98 (7)	98 (7)	99 (4)
		Nonprot.	52 (33)	57 (33)	62 (30)	89 (22)	100 (0)
Neut.	*-o*	Prot.	69 (31)	91 (19)	94 (15)	100 (0)	100 (0)
		Non-prot.	50 (31)	59 (29)	57 (29)	94 15)	99 (4)
	-i	Prot.	59 (35)	81 (24)	87 (21)	99 (5)	100 (0)
		Non-prot.	48 (36)	48 (29)	61 (31)	92 (22)	100 (0)
	-ma		50 (28)	48 (30)	67 (29)	82 (29)	100 (0)

Table 1 Correct performance in the gender assignment task (%). SDs in parentheses

Table 2 presents accuracy for each participant group on each ending and according to the semantic prototypicality of nouns for the gender agreement task. The NS seem to perform errors almost exclusively on semantically non-prototypical neuter nouns in *–o* and *–i,* i.e. when there is conflict between natural and grammatical gender. All groups of NNS have higher accuracy on semantically prototypical than on semantically non-prototypical nouns and the differences seem bigger than in the gender assignment task, as performance on non-prototypical nouns is extremely low for beginners, low intermediate and high intermediate NNS and remains relatively low even for advanced NNS. Finally, NNS exhibit one of their best scores on nouns ending in *–ma*, contrary to what has been observed in the gender agreement task.

[9] For advanced NNS, Bonferroni comparisons failed to reveal any significant differences among different endings. For that reason, multiple comparisons without any adjustment (Least Significant Difference) were conducted.

Gender	Ending	Semantic Prototypicality	Beginners	Low Intermediate	High Intermediate	Advanced	NS
Masc.	*-os*	Prot.	64 (38)	83 (28)	90 (17)	94 (17)	100 (0)
		Non-prot.	18 (26)	22 (26)	27 (31)	65 (41)	100 (0)
	-as	Prot.	64 (29)	84 (22)	91 (14)	95 (16)	100 (0)
		Non-prot.	5 (12)	4 (14)	21 (27)	47 (40)	100 (0)
	-is	Prot.	69 (33)	83 (21)	88 (21)	97 (11)	100 (0)
		Non-prot.	23 (26)	24 (29)	25 (33)	68 (34)	99 (4)
Fem.	*-a*	Prot.	38 (32)	46 (32)	74 (30)	91 (19)	100 (0)
		Non-prot.	16 (17)	19 (23)	25 (33)	66 (39)	100 (0)
	-i	Prot.	48 (35)	53 (32)	74 (30)	94 (11)	100 (0)
		Non-prot.	14 (19)	11 (19)	16 (28)	54 (42)	99 (4)
Neut.	*-o*	Prot.	76 (25)	91 (12)	90 (17)	94 (17)	100 (0)
		Non-prot.	29 (28)	29 (24)	35 (23)	64 (37)	91 (16)
	-i	Prot.	70 (27)	80 (24)	85 (23)	92 (16)	100 (0)
		Non-prot.	27 (31)	25 (29)	21 (19)	42 (37)	95 (14)
	-ma		75 (21)	83 (20)	85 (22)	84 (17)	100 (2)

Table 2 Correct performance in the gender agreement task (%). SDs in parentheses.

Statistical analyses revealed that all groups of participants had higher accuracy on semantically prototypical than on semantically non-prototypical nouns ($t(32)=9.44$, $p=.000$ for beginners, $t(39)=21.14$, $p=.000$ for low intermediate, $t(27)=17.71$, $p=.000$ for high intermediate, $t(23)=6.75$, $p=.000$ for advanced NNS and $t(40)=4.19$, $p=.000$ for NS). Additionally, there was also a main effect of ending for all groups of participants ($F(3.43,109.82)=19.53$, $p=.000$ for beginners, $F(2.59,101.17)=28.15$, $p=.000$ for low intermediate, $F(3.16,85.25)=13.81$, $p=.000$ for high intermediate, $F(3.22,74.11)=3.26$, $p=.02$ for advanced NNS and $F(7,280)=7.93$, $p=.000$ for NS). Post-hoc comparisons revealed that beginners had higher accuracy on:

(a) neuter nouns ending in *–ma* than on nouns in any other ending,
(b) masculine nouns in *–is* than on masculine nouns in *–as* and feminine nouns in *–a*,
(c) neuter nouns in *–o* than on masculine nouns in *–as* and feminine nouns in *–a* and *–i*,
(d) neuter nouns in *–i* than on feminine nouns in *–a*.

Low intermediate NNS exhibited higher accuracy on:

(a) neuter nouns in *–ma* than on nouns in any other ending,
(b) masculine nouns in *–os* and neuter nouns in *–o* than on masculine nouns in *–as* and feminine nouns in *–a* and *–i*,
(c) masculine nouns in *–as* and neuter nouns in *–i* than on feminine nouns in *–i*,
(d) masculine nouns in *–is* than on feminine nouns in *–a* and *–i*.

High intermediate NNS performed better on:

(a) neuter nouns in *–ma* than on nouns in any other ending,
(b) masculine nouns in *–os* than on feminine nouns in *–i*,
(c) neuter nouns in *–o* than on feminine and neuter nouns in *–i*.

Advanced NNS performed better on:

(a) neuter nouns in *–ma* than on neuter nouns in *–i*,
(b) masculine nouns in *–is* than on masculine nouns in *–as*.

NS exhibited higher accuracy on masculine nouns in *–os* and *–as* and feminine nouns in *–a* and *–i* than on neuter nouns in *–o*, due to the fact that they scored low on semantically non-prototypical neuter nouns ending in *–o*. It seems thus that there is a common pattern in the performance of all groups of NNS in that they all exhibit their best performance on neuter nouns ending in *–ma*. What is particularly interesting is the fact that this pattern of performance is very different from the pattern exhibited in gender assignment, where NNS obtained low scores on nouns ending in *–ma*.

4. Discussion

Our research hypotheses have been confirmed to a large extent. NS have higher accuracy than NNS on both tasks and NNS' performance improves according to their proficiency level. Furthermore, all groups of participants (even NS) perform better on gender assignment than gender agreement, indicating that some of the problems the NNS face may be related to performance issues. It is evident that all groups of NNS have not acquired the correct gender specifications yet, as their scores on gender assignment are relatively low. Advanced NNS however seem to have acquired the underlying gender representations, as they reach the 90% criterion in the gender assignment task, and seem to be encountering performance issues in the gender agreement task. This finding is not surprising because this latter task is more demanding, as the participants need not only perform gender agreement but also select the appropriate adjective. The finding that L2 children perform better on gender assignment (i.e. determiners) than gender agreement (adjectives) is also corroborated by previous studies (cf. Montrul and Potowski 2007).

Turning to the role of the linguistic variables in the two tasks, there are effects of type of ending and semantic prototypicality for both tasks. More specifically, the type of ending affected all L2 groups' responses in the gender assignment task and all groups' responses (even NS) in the gender agreement task. Furthermore, semantic prototypicality had an impact on all L2 groups' performance except for advanced NNS, for who it only approaches significance, in the gender assignment task and on all groups' performance in the gender agreement task. Moreover, the difference in accuracy between semantically prototypical and semantically non-prototypical nouns that share the same endings is bigger in the gender agreement than in the gender assignment task, as in the former task the NNS' scores on semantically non-prototypical nouns are extremely low. It seems thus at first sight that both morpho-phonological and semantic cues play an important role in both tasks and that their role is more pronounced in the gender agreement task as they have a global effect on all groups' accuracy in the latter task.

Closer inspection reveals a different picture though. The pattern of performance of the NNS with respect to noun endings is completely different in the two tasks. In the gender assignment task all groups of NNS exhibit particularly low scores on neuter nouns ending in *–ma* and relatively low scores on feminine and neuter nouns ending in *–i*, while beginners, low and high intermediate NNS also exhibit particularly low scores on masculine nouns ending in *–is.* In the gender agreement task on the other hand, all groups of NNS exhibit particularly high scores on neuter nouns ending in *–ma*, beginners and low intermediates also exhibit low scores on feminine nouns in *-a* and *–i* and all groups of NNS except high intermediate have low accuracy on masculine nouns in *–as*. Finally, NS perform relatively poorly on neuter nouns in *–o*. The pattern of performance of NNS in the gender assignment task can be explained if we assume that they rely primarily on morpho-phonological rules for assigning gender to unknown nouns. Neuter nouns ending in *–ma* are more opaque with respect to gender, as ending *–a* usually marks feminine nouns, and ending *–i* is not transparent either in oral speech as it can denote either feminine or neuter nouns. Finally, low scores on masculine nouns in *–is* can be accounted for by assuming that NNS got confused by the phoneme [i] of the ending, which, as stated above, marks feminine and neuter nouns. It is important to note that Gavriilidou and Efthymiou (2003) also report that L1 children assigned feminine gender to neuter nouns ending in *–i* to a large extent and also exhibited lower accuracy on masculine nouns ending in *–as* and *–is* than on masculine nouns ending in *–os*. Furthermore, their conclusion that L1 preschool children rely primarily on morpho-phonological cues and only secondarily on semantic cues is partly based on these findings. The performance in the gender agreement task on the other hand cannot be explained if we assume reliance on morpho-phonological rules. Rather, it seems that performance on different type of endings in this task is interrelated with other factors, such as semantic prototypicality and gender. The pattern of performance of NS implies that they performed worse when there was discrepancy between natural and grammatical gender, i.e. on semantically non-prototypical neuter nouns. This finding is not surprising given the fact that there are studies indicating that NS sometimes perform semantic agreement when there is clash between natural and grammatical gender (cf. Vigliocco and Franck 2001, Chila-Markopoulou 2003). The high performance of NNS on neuter nouns in *–ma* can be attributed to the fact that they overgeneralized the neuter form of the adjective for [-animate] nouns, which is reasonable based on the fact that L2 learners of Greek often overgeneralize the neuter form of the adjectives (cf. Agathopoulou et al. 2008, among others). Furthermore, poor performance of low proficiency levels of NNS on feminine nouns in *–a* and *–i* can be accounted for by the problems the L2 learners faced with the feminine form of the adjective. Finally, the NNS' low performance on masculine nouns in *–as* needs to be explained in more detail. One could assume that they rely on morpho-phonological cues, as Gavriilidou and Efthymiou (2003) also noted that L1 children had lower accuracy on masculine nouns

in *–as* and attributed the fact to morpho-phonological factors and more specifically to the thematic vowel *–a* of these nouns which coincides with the feminine ending *–a*. We do not, however, believe that this is the case, as there are no other indications of reliance on morpho-phonological cues in this task. On the contrary, we believe that more idiosyncratic factors may explain this pattern of performance, as 3 out of the 4 semantically non-prototypical nouns in *–as* yielded a color adjective and the neuter form of the color adjectives is most commonly used.

Concluding, it seems that morpho-phonological cues had a major impact in the gender assignment task (importantly, Gavriilidou and Efthymiou 2003 also tested gender assignment), whereas semantic cues played an important role in both tasks but affected the participants' performance more crucially in the gender agreement task. The fact that semantic prototypicality influenced the performance of both NS and NNS in gender agreement indicates that accuracy in that task is related to performance issues. Furthermore, the indications that the neuter form of the adjective, which is the most easily accessible form, is overgeneralized also point to mapping-accessibility problems. The present study thus indicates that some of the L2 children's agreement errors should be attributed to performance issues, although, clearly, more evidence is needed in order to reach such a conclusion.

References

Agathopoulou, Eleni, Despina Papadopoulou, and Ksenija Zmijanjac. 2008. "Noun-Adjective Agreement in L2 Greek and the Effect of Input-Based Instruction." *Journal of Applied Linguistics* 24: 9-33.

Alarcón, Irma. 2009. "The Processing of Gender Agreement in L1 and L2 Spanish: Evidence from Reaction Time Data." *Hispania* 92.4: 814-828.

Anastasiadi-Simeonidi, Anna, and Despina Chila-Markopoulou. 2003. "Synchronic and Diachronic Trends in the Gender of Modern Greek: a Theoretical Proposal." In *Gender*, edited by Anna Anastasiadi-Simeonidi, Angela Ralli, and Despina Chila-Markopoulou, 13-56. Athens: Patakis. [in Greek]

Chila-Markopoulou, Despina. 2003. "Gender and Agreement in Modern Greek." In *Gender*, edited by Anna Anastasiadi-Simeonidi, Angela Ralli, and Despina Chila-Markopoulou, 132-167. Athens: Patakis. [in Greek]

Chondrogianni, Vicky, Theo Marinis, and Susan Edwards. 2011. "Production and Processing of Gender by Greek Sequential Bilingual Children." Paper presented at Generative Approaches to Language Acquisition, Thessaloniki, September 6-8.

Dewaele, Jean-Marc, and Daniel Véronique. 2001. "Gender Assignment and Gender Agreement in Advanced French Interlanguage: A Cross-sectional Study." *Bilingualism: Language and Cognition* 4.3: 275-297.

Gavriilidou, Zoi, and Angeliki Efthymiou. 2003. "The acquisition of Greek gender by preschool children: A pilot study." In *Gender*, edited by Anna Anastasiadi-Simeonidi, Angela Ralli, and Despina Chila-Markopoulou, 190-207. Athens: Patakis. [in Greek]

Hawkins, Roger, and Florencia Franceschina. 2004. "Explaining the Acquisition and Non-Acquisition of Determiner-Noun Gender Concord in French and Spanish." In *The Acquisition of French in Different Contexts: Focus on Functional Categories*, edited by Philippe Prévost, and Johanne Paradis, 175-205. Amsterdam: Benjamins.

Holmes, Virginia M., and B. Dejean de la Bâtie. 1999. "Assignment of Grammatical Gender by Native Speakers and Foreign Learners of French." *Applied Psycholinguistics* 20: 479-506.

Meisel, Jürgen, M. 2009. "Second Language Acquisition in Early Childhood." *Zeitschrift für Sprachwissenschaft* 28: 5-34.

Montrul, Silvina, and Kim Potowski. 2007. "Command of Gender Agreement in School-age Spanish-English Bilingual Children." *International Journal of Bilingualism* 11: 301-328.

Oliphant, Katrina. 1998. "Acquisition of Grammatical Gender in Italian as a Foreign Language." *Canadian Modern Language Review* 54.2: 239-262.

Unsworth, Sharon. 2008. "Age and Input in the Acquisition of Grammatical Gender in Dutch." *Second language Research* 24.3: 365-395.

Tzevelekou, Maria, Spyridoula Varlokosta, Maria Iakovou, Valli Lytra, Vicky Kantzou, Athina Sioupi, Spyridoula Stamouli, Arxonto Terzi, and Vicky Chondrogianni. 2003. *Let's Speak Greek I, II, III*. Athens: University of Athens. [in Greek]

Varlokosta, Spyridoula. 2005. *Greek as a Second Language in Minority Schools of Thrace: Learning Gender Compared to Learning Number and Case within the NP*. Unpublished manuscript. [in Greek]

Vigliocco, Gabriella, and Julie Franck. 2001. "When Sex Affects Syntax: Contextual Influences in Sentence Production." *Journal of Memory and Language* 45: 368-390.

White, Lydia, Elena Valenzuela, Martyna Kozlowska-Macgregor, and Yan-Kit Ingrid Leung. 2004. "Gender and Number Agreement in Nonnative Spanish." *Applied Psycholinguistics* 25: 105-133.